National Cooperative Soil Survey Newsletter

August 2001
Issue 16

In This Issue—

Editor's Note

Issues of this newsletter are available on the World Wide Web (www.statlab.iastate.edu/soils/soildiv). Click on NCSS and then on the desired issue number of the NCSS Newsletter.

You are invited to submit stories for future issues of this newsletter to Stanley Anderson, National Soil Survey Center, Lincoln, Nebraska. Phone—402-437-5357; FAX—402-437-5336; email—stan.anderson@nssc.nrcs.usda.gov.

NCSS Soil Scientist Achievement Award

By Horace Smith, Director, Soil Survey Division, Natural Resources Conservation Service, Washington, D.C.

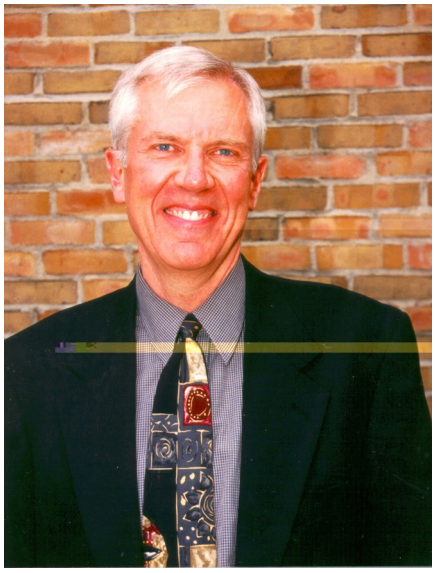
Timothy D. Gerber from the Ohio Department of Natural Resources (DNR), Columbus, Ohio, is the recipient of the National Cooperative Soil Survey (NCSS) Soil Scientist Achievement Award for the year 2001. This award recognizes exceptional achievement by individuals working in production soil survey under the auspices of the NCSS. Tim Gerber is being honored for his cumulative impact on and exceptional management of production soil survey in the State of Ohio. Tim has been instrumental in providing direction for the soil survey program in Ohio and enabling many other programs that provide quality products to soil survey users in the State. Recently, Tim worked to secure funding through the State legislature that enabled acceleration of the digitizing program in Ohio. He currently is actively pursuing implementation of an automated map compilation program for counties being digitized through the State funding initiative.

Following is a brief summary of Tim Gerber's exceptional career and achievements in the Ohio Cooperative Soil Survey Program:

• Tim began his career as a Soil and Water Conservation Aide for the Stark Soil and Water Conservation District in 1968. He also worked at various laboratory and teaching jobs at The Ohio State University as he worked his way through college. Tim's mapping career began in 1970 as a college intern with the Ohio Department of Natural Resources (DNR), Division of Lands and Soil. He completed a Masters program in soils in 1973 and began working as a full-time soil scientist with the Ohio DNR.

• Tim worked on four project surveys in Ohio and progressed rapidly to the position of Soil Survey Project Leader. He served as project leader for two surveys in Ohio, in Carroll County and Jefferson County. Tim trained a number of young soil scientists and always had a staff that was very knowledgeable in the art and science of soil survey work.

• Tim was selected as the Soil Survey Coordinator for the Ohio DNR's current Division of Soil and Water Conservation in 1986, a position equivalent to the State Office correlator position of that time. Tim's scientific approach to investigations made him an



Timothy D. Gerber

excellent quality assurance person and a huge asset to the Ohio Cooperative Soil Survey Program.

• In 1991, Tim was selected as the Administrator of the Soil Inventory and Evaluation Section, Ohio DNR's top position in the soil survey program. He has served as the Chairman of Ohio's Soil Inventory Board since 1993. The inventory board is made up of the program managers of the three partner agencies of the Ohio Cooperative Soil Survey Program—Ohio Department of Natural Resources, The Ohio State University, and NRCS.

• Tim has also served as a member of the NRCS Division Director's Advisory Committee. He is recognized nationally for the high-quality work he does and is committed to making the program the best it can be. Tim has been active in professional organizations, such as Soil Science Society of America, Association of Ohio Pedologists, Ohio Academy of Science, and Soil and Water Conservation Society, throughout his career. ■

NCSS Soil Scientist of the Year

By Horace Smith, Director, Soil Survey Division, Natural Resources Conservation Service, Washington, D.C.

Eva M. Muller, Soil Survey Project Leader for the Spokane County soil survey in the State of Washington, is the recipient of the 2001 National Cooperative Soil Survey (NCSS) Soil Scientist of the Year Award.

The NCSS Soil Scientist of the Year Award nationally "recognizes exceptional achievement by soil scientists who are working in the production phase of the soil survey program." The first award was presented in 1999 as part of the Soil Survey Centennial Celebration and is now granted annually to outstanding soil scientists at the GS-12 level and below. Nominees must have a minimum of 3 years service in the production phase of soil survey. Individuals may receive this award only once during their career.

Eva M. Muller has had more than 7 years experience working in the production phase of soil survey. Her first 4 years were spent in Montana, and for the past 3 years, she has served as the Soil Survey Project Leader for the Spokane County soil survey update in Washington State. According to Karl Hipple, State Soil Scientist in Washington, Eva's exceptional skills, abilities, and contributions have made the Spokane soil survey update stand out above any soil survey that he has been involved in or knows about. As a soil scientist, a soil survey project leader, a person, and a professional, she has been second to none. Eva's efforts have gone beyond what is expected of a journeyman soil survey project leader, and she has been tireless in the pursuit of excellence for herself, the survey, and the crew of the Spokane County soil survey.

Following is a brief description of a few of Eva's accomplishments:

• The Spokane County soil survey benefited from exceptional outreach and marketing to all soil survey customers through Eva's efforts. As an example, she enlisted the services of two television stations and developed a news story about the soil survey's efforts and partners. The story was carried on both news stations. These news stories not only assisted the NRCS with obtaining landowner permissions but also provided accurate information about soils and soil survey procedures and products to viewers.

• Eva adopted innovative techniques for using mylar digital orthophoto quads (DOQs) as a base for soil survey maps to increase efficiency in the delivery of completed soil surveys. These techniques eliminated the compilation step of digitizing the soil survey of Spokane County.

Eva M. Muller

• Eva encouraged and led the Spokane County soil survey crew to use state-of-the-art GIS applications to create innovative products for the soil survey. For example, a GIS application was used to evaluate and illustrate differences between 1968 soil mapping and current updated mapping for quality-control purposes. The soil survey team used ARCView to routinely analyze original soil maps, develop new map unit concepts, display soil information for progress reviews, and market soil information to the many user groups.

• Eva has developed and maintained an outstanding level of interaction and coordination between NRCS and all NCSS partners involved in the Spokane County soil survey project, including local groups and units of government.

She made particularly strong alliances with the Spokane County Health District, the Pacific Northwest Indian Agency, and geologists in the Washington Department of Natural Resources. These efforts ultimately benefited all groups that have worked with the survey. ■

Governor Guinn signs Orovada soil bill into law

Reprinted from The Humboldt Sun, June 25, 2001 (Volume 32, Issue 129), Winnemucca, Nevada; by Dave Woodson, Sun Staff Writer.

It's official—Orovada soil is Nevada's state soil.

In a ceremony recently in the governor's office in Carson City with Orovada School students and teacher Mike Teichert, Governor Kenny Guinn signed into law a bill designating the Orovada soil as the state soil.

Orovada students in sixth through eighth grades researched the project for more than a year and then lobbied the legislature under the guidance of teacher Mike Teichert.

Those students made presentations to both the Assembly Committee on Government Affairs and the Senate Committee on Government Affairs.

Both houses of the legislature passed the bill (S.B. 152) unanimously.

"This is a good bill," Guinn said to the students. "You have done a good job."

Teichert's sixth grade son, Zack, told the governor, "We want people to understand how farming the soil puts food on the table."

Guinn urged the students to continue their hard work, saying in parting: "Study hard and get A's."

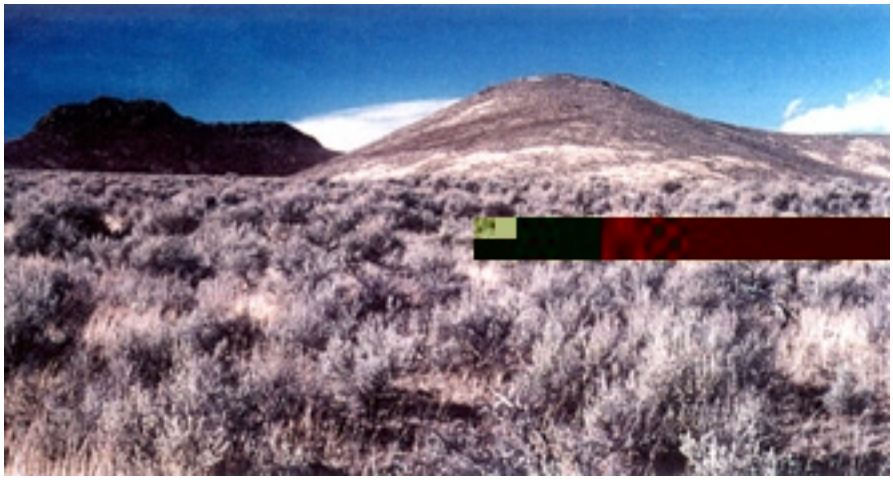
"Basically, I thought this would be a good way for the kids to see closure to their project," Teichert said. "It was really a great experience."

Teichert said the students made the trip to the governor's office on short notice.

"On Thursday at 8:45 a.m. we got a call from the governor's office basically telling us the bill signing of the Orovada soil—and there would be a photo shoot as well—was the next day at 8:30," he said. "They gave us less than 24 hours' notice."

At first, Teichert thought: "Oh, there is no way we can do this." Friday was the last day of school.

Orovada school teacher Mike Teichert and his sixth through eighth graders were present when Nevada Gov. Kenny Guinn signed into law a bill that would make Orovada soil the state soil.



Orovada soils are commonly in areas of semiarid rangeland with sagebrush-grass plant communities. The principal grops grown on these soils are alfalfa for hay and seed; winter wheat and barley; and grasses for hay and pasture.

But, having previously secured school board permission to make the trip, the students did get to the governor's office with only minutes to spare after a pre-dawn wake-up call.

"We met at the school at 3:45 in the morning and drove to Carson City and got there about 8:20, he recalled. "Ten minutes to go."

He said the students were ushered into the governor's office.

"We went right in and the kids got to see all the portraits of former governors and sign their names into the guest book," Teichert said.

Teichert said the governor's office had the sample of Orovada soil that had been sent there earlier by the students.

"They had that right in the governor's office," he said. "They had all the information posted."

"We thought that was pretty cool."

Teichert said that Guinn really did not discuss the bill with the students, but spoke to them more as a former superintendent of schools.

"Most of the time he spent talking about the kids getting good grades so they could have a shot at getting that Millennium scholarship, which is a $10,000 scholarship," Teichert reported.

He said once in the governor's office, the students seemed to know exactly what to do.

"They had all just lined up—nobody told them—they just all lined up around the governor," Teichert said. "Silent as church mice."

He said he didn't have to worry about any misbehavior.

"They acted with a lot of class and they acted really maturely," Teichert recalled.

Teichert said he wanted to thank the school board and the school district for supporting the project and making the transportation available.

He said the presentation that was made to the legislative committees on Orovada soil is available on a power point CD-ROM and is available to anyone including teachers who might be interested in teaching students about soil.

"Our project wasn't really so much about Orovada soil but about soil in general," he said. "The main thing was about the importance of soil to life. How farming and soil put food on your table and the conservation techniques that farmers are utilizing on their soil."

Teichert said the CD-ROM would be available for only the duplication cost.

"It was really a great culminating activity for all the work the kids and I put into this project," Teichert concluded. ■

Laboratory Information Management System (SSL-LIMS) Implemented

By Thomas G. Reinsch, Soil Scientist, Soil Survey Laboratory, Natural Resources Conservation Service, Lincoln, Nebraska.

The Soil Survey Laboratory implemented a laboratory information management system (SSL-LIMS) in April 2001. The SSL-LIMS is part of the NASIS architecture, and common data elements are shared. The client-server application operates within the Microsoft Windows environment and utilizes a relational database for data storage. Internal reports are viewed with a Web browser. This system replaces the mainframe-based information system that has been used since 1976. Currently, a combination of the two systems is being used. Data are entered into the SSL-LIMS and transmitted to the mainframe database. The mainframe database is used to provide Web access. It will be used until a replacement is created.

Laboratory personnel use the SSL-LIMS to log samples, create projects, request preparations and analyses, manage laboratory work lists, collect raw data, and calculate and report results. The features of SSL-LIMS are uniform data entry, integrated data management, accommodation of multiple preparations for analysis, ability to quickly add procedures and instruments, simplified project management, generation of work lists for preparation and analyses, synchronized results and calculations, and integration with NASIS. ■

Improvements Increase Utility of National Soil Information System (NASIS)

From "USDA NRCS Technology News, " June 2001.

Recent improvements to the National Soil Information System (NASIS) provide better and faster access to soil data and reports. The NASIS Central Server, which hosts the first application on the USDA Web Farm at Fort Collins, increases performance at the field office level and allows interpretations and map unit data to be shared among all users.

Soil survey data can be exported from NASIS in the new SSURGO Version 2 data standard. These data can be loaded into an MS Access template, which is available from the NASIS Web site (http://nasis.nrcs.usda.gov). The exports include "fuzzy logic" interpretations, which provide users more meaningful information to aid in making decisions on the use and management of soils.

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Searchable *Keys to Soil Taxonomy*

By Noorallah G. Juma, Ph.D., Salman Productions Inc., Edmonton, Alberta, Canada.

We have developed a database and Web interface for *Keys to Soil Taxonomy*, eighth edition. You can access this information at http://www.pedosphere.com/taxonomy/.

We have captured information from chapters 4 to 16 into the database and have created HTML files for chapters 1, 2, 3, 4, 17, and 18. The beauty of this system is the easy access to the data for the higher category. For example, if you are at the subgroup level, the information of the three higher categories can be accessed by the hyperlinks on the same page. The information is presented in pop-up windows.

The second powerful feature is the ability to search for subgroup names using partial or complete names. This is similar to the concept in the Official Soil Series database.

We have added a pop-up glossary which includes the material from chapters 1, 2, 3 , 17, and 18 and have arranged the topics in the glossary sequentially so that people familiar with the print version will find that the on-line information is searchable and in the same format.

The search field within the pop-up glossary can extract information from the above-mentioned chapters. For example, the word “key” yielded the following results:

Key to the Control Section for Particle-Size Classes in Mineral Soils
Key to the Particle-Size and Substitute Classes of Mineral Soils
Key to Mineralogy Classes
Key to Cation-Exchange Activity Classes
Key to Calcareous and Reaction Classes
Key to Soil Temperature Classes
Key to Soil Depth Classes
Key to Classes of Coatings
Key to Classes of Permanent Cracks
Key to Particle-Size Classes of Histosols and Histels
Key to Mineralogy Classes for Histosols and Histels
Key to Soil Depth Classes for Histosols and Histels
Key to the Control Section for the Differentiation of Series

All the above items are hyperlinked to the appropriate sections. These hyperlinks come in quite handy when one needs information about technical terms and concepts in the keys to orders, suborders, great groups, and subgroups.

We are still looking for ways to further improve the interface and accessibility of this valuable resource.

For more information, contact:

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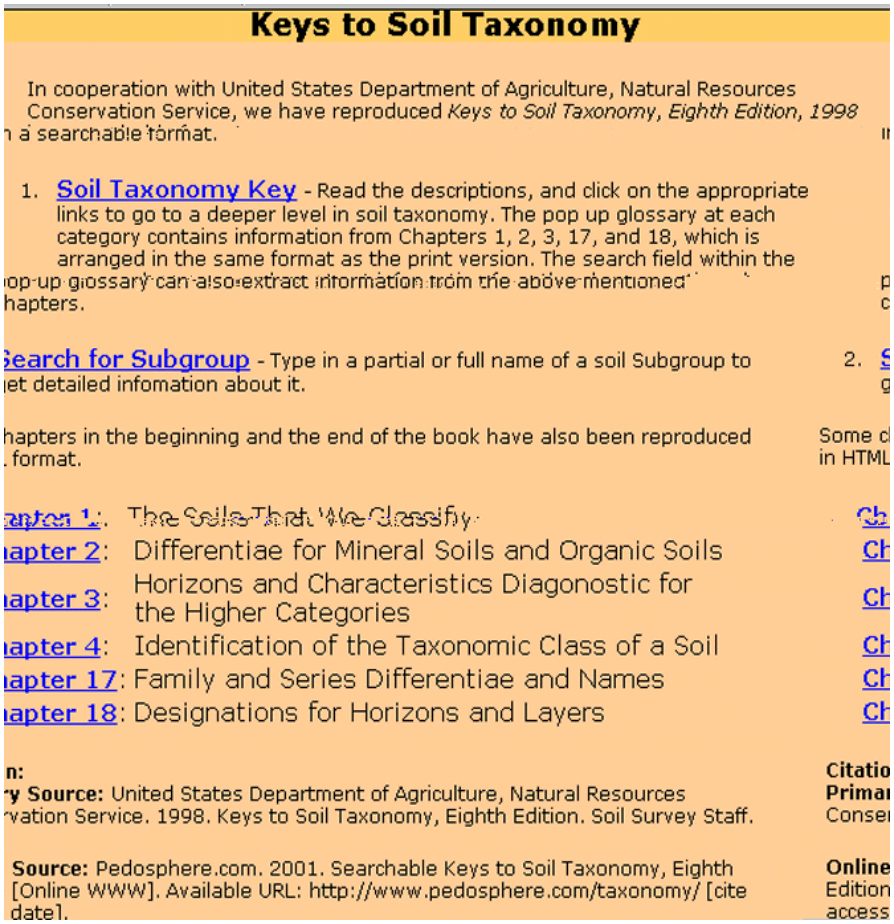


Urban Soils Forum

By Joyce Scheyer, Soil Scientist, USDA, Natural Resources Conservation Service, National Soil Survey Center, Lincoln, Nebraska.

In the NCSS Newsletter for May 2001 (issue 15), I posed the following questions:

Question 1.—I was thumbing through the *Soil Survey Manual* and the "National Soil Survey Handbook," trying to see if there are any guidelines as to when to call a soil an urban phase. In residential areas at what density of houses do you give a map unit the name of an urban land complex, such as Alpha-Beta-Urban land complex, 8 to 15 percent slopes? I have heard that, for NRI purposes, urban land has a housing density of at least one house per 1.5 acres. Is there any kind of guideline for mapping?

Question 2.—What is the best way to map highways—as phases, components, named series, or miscellaneous areas? Has anyone established a map unit for highways of a certain size?

Following is a response from Dave Kingsbury, Soil Data Quality Specialist, USDA, Natural Resources Conservation Service, MO 13, Morgantown, West Virginia (David.Kingsbury@wv.usda.gov):

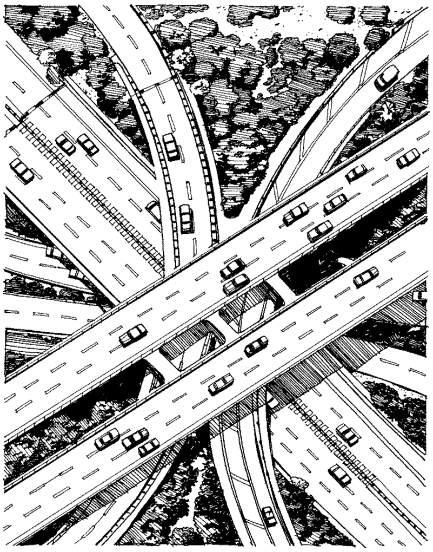
Joyce,

I just read your article in the NCSS Newsletter about the Urban Soils Forum. I can give you my perspective on the questions you raise.

The basic question as to what constitutes Urban land may be somewhat of a moving target. In the past I considered Urban land to consist of areas with impervious surfaces, such as paved parking lots, buildings, and paved roads—basically, areas that allow little or no water to enter the soil. I see that the definition in the "National Soil Survey Handbook" is more general and does not require impervious surfaces. This may be a somewhat regional definition of Urban land, but I suspect that it is not much different from the definition used in other parts of the country. The *Soil Survey of Nassau County, New York*, has quite a few Urban land units (a consociation and several complexes) and pretty much defines Urban land the way I defined it above. To me, this definition makes a lot of sense, because if the area is not covered by impervious surfaces, it would be some sort of Orthent or Arent that has some degree of infiltration and permeability at the surface (influencing hydrologic modeling, perhaps). We used 85 percent impervious surface as the break between an Urban land consociation and an Urban land complex. Urban land generally had to make up at least 15 percent of the unit for it to be a named component. However, according the criteria for consociations and complexes in the *Soil Survey Manual*, it looks as if Urban land could really be a named component if it makes up more than 10 percent of a map unit, since the *Manual* says that if the component is very contrasting, it generally does not need to be a named component if it does not exceed 10 percent. Rock outcrop is the classic example, but Urban land is just about as limiting (and very contrasting) as is Rock outcrop.

Concerning the NRI definition for Urban land, I have also heard similar of definitions from soil survey project leaders. In the very narrow valleys of the Cumberland Plateau of eastern Kentucky, one of the project leaders said that the definition used for NRI was 20 dwellings per mile (again, along narrow stream flood plains where a house, driveway, or road pretty much covered the whole width of the flood plain). I never used this definition for a map unit, nor have I recommended it. I think the NRI definition describes land use and potential land use in very general terms, whereas in soil survey Urban land is treated as more of a component. The NRI definition fits better into a complex in soil survey.

What I used to do is a combination of "armchair transects" and ground observation. One particularly cold, snowy winter, I ran out of transects to crunch and could not do any more collection until the snow melted. So I took ASCS slides of some developed areas (both old development and new development) in my survey area. I projected the slides onto a large sheet of paper and literally laid out (randomly) transect lines with a ruler. The transect "points" were either 0.5 or 1.0 centimeter apart, and I just counted up the impervious surface points out of the total points on the transect. I then ran another transect line perpendicular to the first, starting at the same point as the first. I did this for quite a few areas to determine what the density looked like for various percentages of Urban land. I thought that this was better than



viewing it on the ground, since large buildings tend to make you think that there is more building there and no buildings may make you think that there is less impervious surface. It is similar to Rock outcrop. If you are next to a rock escarpment (below, looking either horizontally or up at the escarpment), it sure looks like a lot, but if you view it from the air, there is not as much as you originally thought.

Besides, running transects through these areas on foot, for determination of impervious surfaces, was not as practical, and you would have to cut through many individual properties (some with dogs, some without). Permission acquisition was a major problem; thus, I employed the "armchair transect"approach. Observations of excavations within the developed areas helped me to determine characteristics of the Udorthents or soil series component. It was surprising how often excavations were made in these areas.

In mapping highways, I thought that the best approach was using complexes, depending on the scale. At the common scales of 1:12,000 and 1:24,000, delineating only the paved surfaces of highways (even of wide highways) is difficult or impossible. An Urban land-Udorthents complex or Udorthents-Urban land complex seemed to describe the situation pretty well. Usually, a corridor is delineated that includes the highway and radically disturbed areas adjacent to the highway. It does depend on how radically the soils are disturbed. Unless the construction method and materials are very consistent, such as in mine-soil construction, I do not think that a series would be as useful (actually, "appropriate" would be a better word) as great groups or subgroups. Phasing a soil or Udorthents component would probably not be that good either, since the altered material below Urban land may or may not be vastly different from the material in the adjacent disturbed areas that do not have impervious surfaces.

One survey in Kentucky that I worked with until recently used Udarents in some of the complexes if the soils were not too radically disturbed. These units were differentiated from from Udorthents units on the basis of housing density and type of development (residential vs. commercial). I had not thought of that aspect before then. This project staff was pretty innovative in their approach, quite possibly because they were not bound by history or tradition (unlike me). They really checked all the options before developing their map units.

Anyway, these are the opinions that I have developed while working in the MO-13 area and in New Jersey. I hope they are not too far off what others are thinking or doing. ■

Language Matters

By Stanley Anderson, Editor, USDA, Natural Resources Conservation Service, National Soil Survey Center.

Following is a poorly written passage about the virtues of good writing:

> Soil scientists preparing reports of soils information have captive readers. If the customers use thematic maps and/or soil maps, they must read the soil scientist's text no matter how well, dull or difficult it is to understand. If the soil scientist writes well, they will have more appreciative customers.

Physician, heal thyself.

Because of a misspelling, the following sentence is open to a peculiar interpretation: "Many of the original native prairie plants are presently growning on some of the larger ranches." ■